This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A method for injecting cells into elastically deformable biological tissues comprising:

adhering the tissue at least in part on a support member;
positioning an injection needle at a desired site of the tissue;
generating microvibration in said needle;
piercing the tissue with said needle at said desired site; and
injecting a cell suspension through said needle.

2. (Original) The method of claim 1 wherein said cell suspension is injected in a metered volume using fluid metering means.

3. (Currently Amended) The method of claim 1 ~~or 2~~ wherein said needle is positioned in said desired site using means for automatically positioning said needle in three dimensional coordinates.

4. (Currently Amended) The method of ~~one of claims 1-3~~ Claim 1 wherein the tissue is adhered by suction.

5. (Currently Amended) The method of ~~one of claims 1-4~~ Claim 1 wherein said microvibration is generated by a mechanical vibrator, an electrical oscillator or a ultrasonic vibrator.

6. (Currently Amended) The method of ~~one of claims 1-5~~ Claim 1 wherein said tissue is of human or other mammalian origin.

7. (Original) A system for injecting cells into elastically deformable biological tissue comprising:

means for adhering the tissue at least in part on a supporting member;
means for positioning an injection needle at a desired site of the tissue;
means for generating microvibration in said needle;
means for piercing tissue with said needle at said desired site; and
means for injection a cell suspension through said needle.

8. (Original) The system of claim 7 further comprising means for precisely metering said cell suspension in a predetermined volume.

9. (Currently Amended) The system of claim 7 ~~or 8~~ further comprising means for automatically positioning said needle in three dimensional coordinates.

10. (Currently Amended) The system of ~~one of claims 7-9~~ Claim 7 wherein said adhering means applies a suction pressure on the tissue through said support member.

11. (Currently Amended) The system of ~~one of claims 7-10~~ Claim 7 wherein said microvibration means comprises a mechanical vibrater, an electrical oscillator or a ultrasonic vibrator.

12. (Currently Amended) The system of ~~one of claims 7-11~~ Claim 7 wherein said biological tissue is of human or other mammalian origin.

13. (New) A method for preparing a transplantable biological tissue segment comprising the steps of:

(a) providing a biological tissue segment suitable for transplantation;

(b) applying said tissue on a first face of a support member defining a plurality of throughholes;

(c) holding said tissue by applying a negative pressure on a second face of said support member opposite to the first face;

(d) generating microvibration in an injection needle;

(e) piercing said tissue with said injection needle at a desired point to a predetermined depth by advancing the needle through the interface between the tissue and the first face of said support member;

(f) infusing a predetermined volume of a cell suspension; and

(g) repeating the steps (a) to (f) at different points of the tissue other than the first point sequentially.

14. (New) The method of claim 13 wherein said biological tissue is of human or other mammalian origin.

15. (New) The method of claim 13 wherein said biological tissue is an intact tissue, a decellulized tissue or a tissue treated with a cell-fixing agent.

16. (New) The method of claim 13 wherein said cells are autologous cells of a recipient of the tissue.

17. (New) The method of claim 13 wherein various points of the tissue to be pierced with the needle in steps (e) and (g) are determined by scanning the tissue held on said support member with an automatic needle positioning means for positioning the needle to a series of said point according to their X and Y coordinates.

18. (New) The method of claim 17 wherein said predetermined depth in step (e) is also controlled by said automatic needle positional means.

19. (New) The method of claim 13 wherein said injection needle is connected in fluid communication with an automatic metering device for the cell suspension.

20. (New) A system for injecting cells into a biological tissue segment comprising;

an injection needle;

means for generating microvibration in said needle;

means for holding said tissue on a first face of a support member, said support member defining a plurality of throughholes and slidably supporting said needle therethrough;

means for alternately applying a negative pressure and a positive pressure in said throughholes;

means for advancing and retracting the distal end of said needle a predetermined distance across the first face of said support member;

means for infusing a predetermined volume of a cell suspension into the tissue through said needle when the needle is extended beyond said first face of said support member; and

means for positioning and repositioning said needle, when the needle is retracted from the extended position, to a series of point on the tissue according to their X and Y coordinates.

21. (New) The system of claim 20 further comprising a housing defining a chamber in the interior thereof, said support member for the tissue being part of said housing, said needle extending centrally through said support member and said chamber.

22. (New) The system of claim 21 wherein said needle and said microvibration means are secured to a piston that reciprocates in said chamber, and said means for applying negative and positive pressures being means for creating negative and positive pressures within said chamber.

23. (New) The system of claim 21 wherein said means for advancing and retracting the needle are mounted on said housing on the side opposite to said tissue support member, and wherein said means for positioning and repositioning the needle displace said housing relative to the X and Y coordinates of the tissue.

24. (New) The system of claim 21 wherein said means for infusing the cell suspension comprise a fluid metering device connected to the needle in fluid communication externally of said housing.

25. (New) The system of claim 20 wherein said microvibration means comprises a mechanical vibrator, an electrical oscillator or a ultrasonic vibrator.